



Lewistown Flight Service Station

MONTANA

and the SKY



MONTANA

AERONAUTICS

DIVISION

Vol. 29, No. 2

FEBRUARY, 1978

CORRECTIONS TO 1978 AIRPORT DIRECTORY

Please make the following corrections in your 1978 Montana Airport Directory.

On page A-5, under FAA Flight Service Stations and U.S. Weather Bureaus, the left hand column of phone numbers should be labeled **Weather Bureau** and the right hand column should be labeled **F.S.S.**

Also on this page, the Kalispell weather bureau number should be changed to 755-4829.

Page A-12

CUT BANK

Glacier Air.....B 873-2492

Blackfoot Air Service.....B 873-4448

Page A-13

POLSON

Clyde Fredrickson AviationB 883-4061

On the Bozeman Airport page under the radio section, the UNICOM should be listed as 123.0 not 123.6.

On the White Sulphur Springs Airport page, the symbol at the top of the page illustrates a paved airport. This symbol should be changed to show a non-paved airport.

Please help us keep the directory up to date. If you know of any corrections or changes, please let us know.

PILOT PINCH HITTER COURSE OFFERED

A Pinch Hitter Course sponsored by the Montana 99's will be presented Tuesday and Wednesday, March 28 & 29 at 7:30 p.m. Place will be the Montana National Guard Hangar, Helena Airport. This will be an AOPA course instructed by the Aeronautics Division, FAA and Morrison Flying Service. The charge will be \$20.00 per person. For additional information call Liz Gunn at 442-6080.

WINTER AIR RACES

Weather permitting, there will be an air race for any private or commercial pilot February 25, 1978, beginning and ending in Choteau. The 550 mile closed course will include five landings and will be flown under a time clock. Aircraft must be two place or more. There will be four classes for trophies and cash prizes. A weather and airport briefing will be furnished prior to take off. A \$30.00 registration fee will be charged for each aircraft.

(Continued on Page 2)

NOTICE . . . WE NEED YOUR HELP!!!!

At a recent meeting with the FAA in Denver their Facilities people stressed the point several times that they want our input and ideas regarding needs for communications and navigation facilities in Montana. This is most timely since we are right in the middle of the Flight Service Station issue and have recently suffered the closure of Great Falls Center. However, to be meaningful, our allegations and opinions must be documented and backed up with cold, hard facts. That's where our readers must come in.

In the course of "hangar flying" conversations, etc. we hear off-hand grumblings quite often about lack of coverage — "you have to be at least at 10,000 feet over Wolf Point in order to get Center." While this may indeed be the case, grumbling amongst ourselves about it is not what is needed. What is needed are letters detailing the problems which contain elevations, locations, a recounting of specific incidents, description of the problem encountered, etc. If all concerned will simply take a few moments to jot down their thoughts and experiences and drop it in the mail, we will be much better able to make our case and the FAA will be in a better position to plan for a more effective airways system.

**DEPARTMENT OF
COMMUNITY AFFAIRS**

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Harold A. Fryslie, Director
Martin T. Mangan, Deputy Director**

**Official Monthly Publication
of the**

AERONAUTICS DIVISION

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Helena, Montana 59601

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Edited by: **Bernice M. Peacock**

THURBER'S  HELENA

HAVE YOU REGISTERED?

PILOT REGISTRATION — If you have not registered yet, you are delinquent. When you register, please be sure you enclose the appropriate amount of money. Remember, pilot registration is \$1.00. The aeronautical chart is \$2.00. If you want a complete airport directory it is \$2.00. If you already have a directory and want the 1978 revisions, they are \$1.00. An annual subscription to this newsletter is \$1.50.

AIRCRAFT REGISTRATION — If you have not registered your aircraft by March 1 you are subject to a \$100 penalty in addition to the \$4.00 registration fee. You do not have much longer to get your aircraft registration in if you have not already done so.

ADMINISTRATOR'S COLUMN



The Aeronautics Board met January 19 and 20 at the new terminal building, Gallatin Field, Belgrade, Montana. Bill Merrick, Aeronautics Board Member, and Chairman of the Gallatin Airport Authority, and Frank Wolcott, Airport Manager, hosted the board members and Aeronautics staff on a tour of the new facilities. Gallatin County citizens should be very proud of this beautiful facility which is certainly going to be a tremendous asset to the entire area.

It was most gratifying to hear Bill Merrick, acting in his official capacity as Chairman, express thanks to the Aeronautics for the financial aid which provided the seed money to make this project possible and, in fact, a reality.

* * * * *

The Aeronautics Board, acting on the unanimous recommendation of the West Yellowstone Aviation Steering Committee, agreed to retain T.A.P., Inc. a Bozeman consulting firm, to conduct a feasibility study to determine if it could be financially feasible to keep the Yellowstone Airport open on a year round basis. This project is eligible for 90% funding by the FAA under the Airport Development Aid Program. The West Yellowstone citizens have agreed to provide the 10% sponsor share.

* * * * *

The Board reviewed Hearing Officer Kiely's findings and recommendations on the Star Aviation application for a certificate of public convenience and necessity to provide commuter airline service to Billings from Gillette and Sheridan, Wyoming. With only some

minor changes in the recommendations, the board unanimously agreed to grant a six month interim certificate during which time pertinent reporting requirements will be necessary in order to make a final decision on whether or not to grant a permanent certificate at the end of the first six months of operation.

* * * * *

Herb Sammons, representative of the MPA serving on the Aeronautics Board, represented the Aeronautics Division and Board by joining delegates from Cut Bank, Bozeman, Butte, Lewistown, Miles City and Livingston at a meeting held in Washington, D.C. with DOT Secretary Adams and FAA Administrator Bond, to voice our opposition to the FAA's planned Flight Service Station cut backs and closures. Governor Judge, as well as the Montana Congressional Delegation, attended this meeting in support of the delegation. It was most gratifying to have Governor Judge, Senator Hatfield, Congressman Baucus, Congressman Marlenee, and Buddy Faught of Senator Melcher's office, take the time to attend the meeting and participate in supporting the delegation's opposition. The delegation felt optimistic that the FAA will continue their self-imposed moratorium, at least until after they send someone to Montana to take another look at our flight service station needs. We wish to thank Senator Melcher for making the necessary arrangements to make this meeting possible.

RATES AND CHARGES SURVEY AVAILABLE

The 1977-78 Montana Major Airline Airports Rates and Charges Survey is now available from this office.

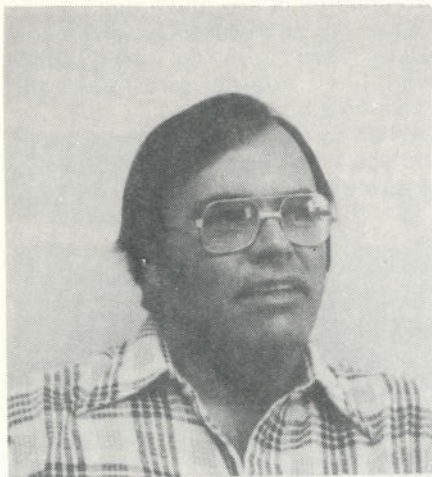
(Continued from Page 1)

A free bar-b-que will be served following the race.

James Raymond of Van Nuys, California stunt pilot will perform in an AT-6 for thirty minutes after the race has been completed.

The race is being sponsored by Insurance Associates, Choteau, Montana. For further information call Brian Haynes in Choteau at 466-5749.

MORE ON ELEVATION SIGNS



By: **Dave Kneedler**, Chief
Airport/Airways Bureau

You'll recall that our December issue contained an article about Bonzer airport elevation signs being offered free to airports in the interest of aviation safety.

FAA's safety staff in Denver has expressed a concern about how these signs are to be mounted since they will be located within the airport operations area. They recommend, and we concur, that signs be mounted on wood posts no larger than 2 inch by 2 inch. This would serve to minimize damage to any aircraft getting "tangled up" with the signs.

We believe that Bonzer is performing a real public service in making these signs available free of charge and with the added precaution of a breakable mounting, the signs should be a valuable addition to your airport.

MPA AWARDS

By: **J. Milton Small**, D.D.S.

Each year at the annual meeting of the Montana Pilots Association we give out five major awards. The awards are given to deserving pilots within our state who have been nominated by one of the MPA hangars.

The five categories are:

1. Senior Pilot of the Year
2. Junior Pilot of the Year
3. Outstanding Pilot of the Year
4. Bill Mathews Award (for a physically handicapped pilot)
5. Bent Prop Award (for the humorous incident or accident

this past year, to be taken in good fun.)

Please send your hangar's nominations for any or all of the categories to the chairman of the awards committee at the below listed address. Also include a resume of the person's flying career or other justification as to why the person should be considered by the committee.

Please send your nominations to the address shown below before April 1, 1978.

Thanks for your help.

J. Milton Small, D.D.S.
201 Montana Building
Great Falls, MT 59401

HAMILTON AIRPORT SURVEY

We have been advised by Bill Tubbs, Tubbs Aviation, Hamilton, that he is in the process of making an extensive survey of the transient planes which come into the Hamilton Airport for business reasons. The survey cards are made available to all who enter the Tubbs Aviation premises and are self-addressed and stamped for the convenience of those who are interested enough to participate in the survey. Bill says he has received 58 cards, which he estimates to be about 75% of the cards taken.

The cards ask the reasons the pilot came into Hamilton, including business, fuel stop only, visit to friends or relatives, how many in party, what type of aircraft, how many days spent in Hamilton, approximate amount spent in Hamilton on: aviation gasoline, food, lodging, other.

The figures Bill gives were compiled during the four busiest months last year and include \$9,847 for lodging, \$2,221.69 for fuel, \$8,406 for food and \$376,265.65 for other services. However, he reported he had just received information that an additional \$68,000 for log homes had just been logged to increase the above-mentioned figures.

This type of survey could be useful to all Montana airports and it would appear that other fixed base operators or airport managers might like to contact either Bill Tubbs or Andre Morris of the Dillon Airport (who made the original survey) for a copy of the survey form.

NAVAIDS



By: **Jerry Burrows**
Aviation Representative

Three new solid state 50 watt non-directional radio beacon (H-Marker) transmitters were put into service during the last few months.

CHOTEAU was a new installation and is operating on a frequency of 269 Khz with an identifier of CHX. This was operational in October, 1977.

BROADUS and **MALTA** were each operating with the older tube type 25 watt transmitter until last month. They both now have a new solid state 50 watt transmitter with the identifier and frequency the same. That is Malta MLK 272 and Broadus BDX 335.

We wish to thank the county commissioners, airport boards, FBO's and others who helped us plow our way out to the transmitter site in order to install the new equipment. Our request for warmer weather never made it, however.

The underground wiring and counterpoise system at **SCOBAY** was installed prior to the ground freezing. We anticipate the station to be operational early this summer. The identifier will be SCO. We are still waiting for the frequency to be determined by the FCC.

A meeting was held in **LIBBY** on the last of January to discuss the possibility of installing an NDB to serve the Libby area. Application forms for a new unicom were also left with the airport board. We understand these matters are being brought before the county commissioners for action.

A one-day NDB school is going to be sponsored by our office sometime in March, probably in Billings, for all the electronic technicians throughout the state that maintain the NDB's in your

community. An electronic technician from the Wilcox factory will present most of the school covering the basic theory, design, and operation of NDB's, and how they relate to aircraft, and go through the setup and alignment procedures with one of the new transmitters. The FAA representative from Denver will also speak briefly on their requirements. We hope you urge those technicians in your community to attend this school. For further information call or write.

SKYCRAFT, INC.



Roger Gregson is the Chief Pilot at Skycraft. Roger is originally from Spearfish, South Dakota and has been flying since 1964. He holds a commercial pilot's license with single and multi engine rating as well as flight instructor and instrument instructor ratings. In 1976 Roger was named Montana Flight Instructor of the Year by the Federal Aviation Administration.

He has over 8,500 hours of flight time and has worked for Skycraft since 1968. Roger and his wife Shirley have two children, a boy and a girl.

Skycraft can be contacted on unicom 123.0. They have tie down space available, engine pre-heat and transportation to town.

When flying into Lewistown, stop in and see Willy, Pat, Roger and Luke at Skycraft, Inc.



Skycraft, Inc. Hangar and Office Facility, Lewistown, MT.

By: **Ted Mathis**

Skycraft, Inc. is located at the Lewistown Airport and is owned and operated by Pat and Willy Rimby. Skycraft has been in business since 1961. They offer 80/87 and 100/130 octane av-gas, major airframe and powerplant repairs, and are a Piper aircraft dealer. FAA and VA approved single and multi engine flight instruction are available as well as single and twin engine charter service.

Willy Rimby is a native of the Denton area. He attended schools in Denton and later received his Airframe and Powerplant mechanic training in Corvallis, Oregon. He also served as a crew member on transport aircraft while in the Marine Corps. He is a Commercial pilot with instrument, flight instructor and multi engine ratings.

Willy and Pat have three children, two girls and a boy.



Pat and Willy Rimby, owners of Skycraft, Inc., Lewistown, MT.

FLIGHT INSTRUCTOR REFRESHER SEMINAR



By: **Jack Wilson**, Chief
Safety and Education Bureau

The Montana Aeronautics Division will sponsor a Flight Instructor Refresher Course which will be held March 6-10, 1978, in the Colonial Motor Hotel in Helena. Registration, housing and classrooms will be at the Colonial Hotel for those persons selected to attend the final portion of the seminar which includes flying. Selection for those who will remain for the flight portion of the course will be based on their activities as instructors, the year they last attended a Flight Instructor Refresher Course and various other information which is on the application forms that have been sent to all known flight instructors.

The course will consist of approximately 24 hours of ground school for all who wish to attend, and six hours of flight training for those selected to remain for the final two days. Instructors for the ground school portion of the course will be personnel from Air Traffic Control, Weather Service and qualified ground school instructors from Montana.

As mentioned before, the ground school portion will be on March 6, 7 and 8, and those persons wishing to attend that portion of the session must make their own room reservations which they will pay for themselves, along with all other accommodations. The Montana Aeronautics Division will furnish no rooms, food, etc. during the first three days of the course. For those selected for the flying portion, the Montana

Aeronautics Division will furnish rooms for the nights of Wednesday, March 8, and Thursday, March 9, and also will furnish aircraft and flight instructors for the flight portion.

Recertification of the flight instructor certificates will be at the discretion of the FAA Operations Inspectors in the two GADO's in Montana. Recertification for those people who attend only the ground school portion of the seminar is at the discretion of the General Aviation District Offices in Billings and Helena.

I wish to state again that in order for anyone to attend the flight portion of the seminar, they must attend the ground school portion the first three days.

If, for any reason, you did not get an application form, please notify us as soon as possible and we will do our best to get one to you.

CENTERLINE



By: **Jim White**, Chief
Air Transportation Bureau

The following letter was sent to Aeronautics by Doug Parrott, from Roundup, who is a Captain with Northwest Airlines. I would like to thank Doug for writing and for covering a subject which would be of interest to all pilots. His letter is printed in its entirety.

KENNEDY INT'L AIRPORT
January 20, 1978

Dear Mike:

I'm sitting here in New York in the middle of the "Blizzard of '78". The winds are 35 to 50 knots, the three

major New York airports are closed by drifting snow and my 747 flight out is grounded. As I look out the window the thought occurs to me as to what a handful my Cessna 180 would be just trying to taxi around in a wind like that. A good day to leave it in the barn and enjoy the day in front of the fireplace.

Which all brings to mind a common hazard that us light plane pilots face at some of our Montana airports that have jet air carrier operations. That is, the wind velocities and temperatures coming out of the tailpipes of those turbo-jet engines. Following are some figures that I would like to share with you and that you might like to pass along to our Montana light plane pilot friends through your monthly Aeronautics Division bulletin.

Each engine of a **727, 737 or DC-9** produces wind velocities and temperatures:

AT IDLE THRUST:

15 feet behind	230 mph	265°C
25 feet behind	135 mph	200°C
40 feet behind	90 mph	150°C
50 feet behind	70 mph	100°C

AT TAKEOFF THRUST:

10 feet behind	990 mph	590°C
20 feet behind	610 mph	350°C
30 feet behind	410 mph	250°C
60 feet behind	205 mph	150°C

Each engine of a **747, DC-10 or L-1011** produces wind velocities and temperatures:

AT IDLE THRUST:

40 feet behind	310 mph	125°C
45 feet behind	250 mph	110°C
50 feet behind	185 mph	100°C
60 feet behind	125 mph	80°C

AT TAKEOFF THRUST:

45 feet behind	400 mph	200°C
55 feet behind	320 mph	150°C
60 feet behind	290 mph	100°C

From the above you can see that following too closely behind a jet would make New York's "Blizzard of '78" look like a pussy cat. Also, it is interesting to note that the smaller jets with their low by-pass engines are just as bad at the higher thrust levels as are the Jumbos' high by-pass engines. Taxiing a jet is similar to taxiing a prop in that once moving, idle thrust is sufficient to keep moving unless you are extra heavy, in soft asphalt or snow, or taxiing up hill. Like a prop it takes more than idle thrust to break away and start moving. Most jet takeoffs are computed on a rolling start, thereby requiring thrust to be accelerating as the jet turns onto the runway starting his takeoff roll.

So don't do your runup too close behind a jet that is awaiting takeoff

clearance and has not yet lined up on the runway.

Hope that this is of interest to you and it may just be food for thought to keep some of our friends from following too closely behind a jet and possibly spoiling their whole day.

See you around,
/s/ Doug Parrott, Capt. NWA
Roundup, MT

AVIATION EDUCATION SUMMER WORKSHOPS



By: **Sam Griggs**, Supervisor

The Aviation Education summer college workshops for teachers have been scheduled as follows:

MONTANA TECH,

Butte June 12-30—8:00 to 12:00

Instructor, Bob Conklin 3 Credits

CARROLL COLLEGE,

Helena July 10-21—8:00 to 12:00

Instructor, Bob Conklin 3 Credits

MONTANA STATE,

Bozeman June 12-21—8:00 to 12:00

Instructor, Bernard Allen 4 Credits

EASTERN MONTANA COLLEGE,

Billings June 19-28—1:00 to 4:00

Instructor, H. C. "Buzz"

Christiansen

3 Credits

NORTHERN MONTANA COLLEGE,

Havre June 29-30, July 1—8:00 to 5:00

Instructor, Ron Kologi 4½ Credits

The Montana Aeronautics Division is providing 50% scholarships to the attending teachers.

For further information contact the individual college.

"THE INSTRUMENT ARRIVAL"



By: **Dale Uppinghouse**
FAA GADO 1,

Accident Prevention Specialist

Most humans welcome safety suggestions with the same enthusiasm displayed by the Romans when "Attila the Hun" showed up. Notwithstanding the risk of losing most readers in the first paragraph, may I suggest more instrument refresher for most instrument-rated pilots.

Inspectors spend a rather large percentage of time administering instrument checks to air taxi pilots. As a rule these A/T pilots are good, but not if they haven't been flying instruments for a spell. Lack of practice and refresher training shows up immediately.

What is the proficiency level of pilots who are not required to demonstrate proficiency every six months? It's difficult to station inspectors at the outer

marker to check it. After an approach and landing many a pilot has muttered, "Thank you Lord, I'll take it from here." Until then the pilot hadn't realized that he could become that lousy since his last real instrument session.

Safety meetings with an instrument flying theme are usually well attended. The interest is there. It's the will that's often lacking. That is, the good hard refresher training with a qualified and interested instrument instructor. Instrument flying is not like riding a bicycle. It takes constant practice to remain proficient. Course, speed, pitch, and power corrections should come as natural as scratching where it itches.

Few approaches are made at less than 100 per cent anymore. That makes for a H --- of an arrival if it is off target.

REMEMBER LAST SUMMER?

(or any summer for that matter)

The picture below was taken during the Plains Fly-In and Air Show last September by Randy Garrison from a plane piloted by Millar Bryce.

Plane and balloon rides, helicopters, skydivers, radio controlled model airplanes, hang gliders, biplanes, and an airshow by Al Newby were enjoyed.

Ah, for summer 1978!





CALENDAR

February 25 — Choteau Air Race.

March 1 — **Deadline AIRCRAFT REGISTRATION.**

March 1-4 — Montana Aviation Trades Association Annual Convention, Heritage Inn, Great Falls.

March 3-4 — Alberta Flying Farmers Convention, Red Deer Lodge, Red Deer, Alberta, Canada.

March 6-10 — Montana Aeronautics Flight Instructor Refresher Course, Helena.

March 16 & 17 — Montana Aeronautics Board Meeting, Helena.

April 1 — Reopening Airport Cafe, Lewistown Airport, Lewistown, MT.

June 1 — Reopening of Yellowstone Airport, West Yellowstone, MT.

June 12-30 — Aviation Education Summer Workshops, Montana Tech, Butte.

June 12-21 — Aviation Education Summer Workshops, Montana State, Bozeman.

June 19-28 — Aviation Education Summer Workshops, Eastern Montana College, Billings.

June 29-July 1 — Aviation Education Summer Workshops, Northern Montana College, Havre.

July 10-21 — Aviation Education Summer Workshops, Carroll College, Helena.

LETTERS TO THE EDITOR

Editor
Montana Aeronautics Division

Dear Sir:

Contratulations to Mr. Finnegan on his achievement.

I thought you might be interested to know of another pilot that began his training at age 60. I began my training then received my certificate shortly after I was 61. I am 65 now and have logged just a few hours under 500. I am checked out in a Cessna 150, a 172, 182, a Cherokee 140 and a 1975 Cardinal R.G. which I own.

I find flying very gratifying and useful.

Thanks to my instructor, George Munson, local FBO and CFI for his help and encouragement when sometimes I felt it was a little late to be starting to learn to fly.

Sincerely,
/s/ Gordon Thompson
Plentywood, MT



Dear Editor:

I'm writing in response to Mr. Clint Collins' letter in the January issue. He wondered whether or not a certain 60 year old pilot (Francis Finnegan) was the oldest person to initially receive a private pilot's license in Montana. No, Mr. Collins, because my father was nearly 63 when he received his private pilot's license in March, 1975.

I feel great pride in telling you a little bit about my father, Chuck (Charles J.) Colier, of Havre. All his life Dad wanted to learn to fly, but was unable to afford the time and expense involved until he was over 61 years of age. He began lessons with Havre Aviation (Chris Christopherson and instructors Pete Johnson and Rod Herrig) and soloed in 1974 at age 62. He received his license in 1975 after being tested by the well-known and much-respected Havre area pilot, Walt Hensley (Hensley Aviation).

Dad is a Montana native, having been born in Havre to Charles W. and Annie Colier who settled here shortly after the turn of the century. Dad graduated from Havre High School and was a member of the first group of Havre students initiated into the National Honor Society. He played football, basketball and track, excelled in his studies, and was well-liked and respected by his peers. He began work for E. J. (Jumbo) Ober while still in high school and continued in his employ until the 1950's, at which time he purchased the Oxford Bar and Billiards from Mr. Ober. Dad continues in the capacity of owner/operator of the Oxford to this date.

Dad is most probably the only Montana pilot to have given over 13 gallons of blood to the Montana Red Cross. (He also donated many pints in Portland during WWII while he worked for Gunderson Shipbuilders, but those pints were not included in the Montana tally.) He is a 43 year member of the Elks, has belonged to the Eagles for 33 years, and is a charter member of St.

Marks Episcopal Church. He has been an avid sportsman, bowler and golfer throughout his life. He has held local and state offices in the Montana Bowling Assn. and the Montana Licensed Beverage Assn. Last year, he was inducted into the Montana Bowling Hall of Fame. He has constantly supported community sporting activities (boxing, college and high school football and basketball) and is the type of man who's always there when someone needs a helping hand.

His accomplishments have been great and many — for Dad has always believed in the word ethics which says each man is responsible for his own life, and that if one wants to succeed, hard work and perseverance will always see that one reaches his goal.

Dad and Mom (Lillian) will celebrate their 40th wedding anniversary this coming April. I can only say that I am thankful beyond words to have been born to two such wonderful people — for they, indeed, are the two unsung heroes of my world.

Sincerely,
/s/ Cynthia Colier Klimas
815 2nd Avenue
Havre, Montana

The best way to forget your own problems is to help someone else solve theirs.

GYROSCOPIC INSTRUMENTS GOOD OPERATING PRACTICES

According to the General Aviation District Office, Helena, an analysis of approximately 125 accidents covering a ten-year period (January 1964 through December 1974) indicates weather-related accidents fall primarily into two general categories with definite poor pilot practices associated with each as follows:

a. Departure into Instrument Meteorological Conditions (IMC) with an inoperative instrument(s)—inadequate pre-flight inspection.

b. Failure of instrument(s) during an IMC operation—failure to maintain partial panel proficiency or inadequate instrument cross-check.

PREFLIGHT INSPECTION—The preflight check of the gyro-operated instruments and their power sources takes on additional importance when flight in IMC is proposed. In addition to the normal IFR and VFR preflight check, the following flight instrument checks should be stressed:

a. Before starting:

(1) Check instruments for poor condition, mounting, marking, broken or loose knobs. Also check the power-off indications of the instrument pointers and warning flags.

(2) Check heading and attitude indicators to ascertain that they are uncaged. Check turn and slip indicator and magnetic compass for fluid level (should be full).

(3) Check condition and security of outside mounted venturi if aircraft is so equipped.

(4) If instruments are electrical, turn on and listen for any unusual or irregular mechanical noise.

b. After starting engine—check instruments for erratic or intermittent operations, excessive warm up or erection time and that warning flags, indicating lights and the test circuits are operable. Additionally, the following items should be checked:

(1) Adequacy of Power Source(s)

(2) Heading Indicator

(3) Attitude Indicator

(4) Turn-and-Slip Indicator (Turn Indicator)

Early detection of an instrument or instrument power failure will be assured if a proper cross-check is maintained.

PILOT PROBLEM—ICE

Most pilots are aware that pitot icing causes erroneous airspeed indications but have not been told what the errors are.

Three types of incorrect airspeed indications are possible as a result of pitot tube icing:

1. In a climb, indicated airspeed will increase.

2. In a descent, indicated airspeed will decrease.

3. In level flight, there will be no change in indicated airspeed.

Pilots should remember to crosscheck all available flight instruments to confirm the proper operation of any single instrument.

(Thanks for the above to the Crash Research Institute, Arizona State University and the Maryland Flight Plan.)

MEMBER

NATIONAL ASSOCIATION OF STATE AVIATION OFFICIALS

PURPOSE—"To foster aviation, as an industry, as a mode of transportation for persons and property and as an arm of the national defense; to join with the Federal Government and other groups in **research, development, and advancement of aviation**; to develop uniform laws and regulations; and to otherwise encourage co-operation and mutual aid among the several states."



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